L Number	Hits	Search Text	DB	Time stamp
2	397	(162/24-26).CCLS.	USPAT; US-PGPUB	2002/03/20 11:07
3	188	(162/98).CCLS.	USPAT; US-PGPUB	2002/03/20 11:07
4	13	((162/24-26).CCLS.) and ((162/98).CCLS.)	USPAT; US-PGPUB	2002/03/20 11:08
7	48826	(length or mm or cm) near4 (fiber or strand or fibrous)	USPAT; US-PGPUB	2002/03/20 11:09
8	41	((162/24-26).CCLS.) and ((length or mm or cm) near4 (fiber or strand or fibrous))	USPAT; US-PGPUB	2002/03/20 11:10
9	23	(flax or hemp or plant or vegetable) and (((162/24-26).CCLS.) and ((length or mm or cm) near4 (fiber or strand or fibrous)))	USPAT; US-PGPUB	2002/03/20 11:22
10	2	hammer$1mill and ((162/98).CCLS.)	USPAT; US-PGPUB	2002/03/20 11:20
11	189256	(sodium adj1 hydroxide) or naoh or ((base or basic) adj1 solution)	USPAT; US-PGPUB	2002/03/20 11:22
12	59	(flax or hemp or plant or vegetable) and ((sodium adj1 hydroxide) or naoh or ((base or basic) adj1 solution)) and ((162/24-26).CCLS.)	USPAT; US-PGPUB	2002/03/20 11:23
13	9	fibrillat$3 and ((flax or hemp or plant or vegetable) and ((sodium adj1 hydroxide) or naoh or ((base or basic) adj1 solution)) and ((162/24-26).CCLS.))	USPAT; US-PGPUB	2002/03/20 11:24

DOCUMENT-IDENTIFIER: US 4548675 A
TITLE: Nonsulfur chemimechanical pulping process

---------- KWIC ---------

BSPR:
The alkanolamine, monoethanolamine, has been disclosed as the pulping agent in U.S. Pat. No. 2,192,202 to Peterson et al. In that patent, however, the process disclosed required an unusually long cooking time of from 4 to 20 hours in a cooking liquid containing 70-100% of the alkanolamine. Clearly such a long cooking time is not commercially desirable, and the quantities of chemicals involved also rendered the process quite expensive. Recently the use of certain alcohols and amines as additive in alkaline pulping was also described. See "Alkaline Pulping in Aqueous Alcohols and Amines" by Green et al, TAPPI, Vol. 65, No. 5, p. 133 (May 1982). In that article, tests of monoethanolamine, ethylene diamine, and methanol as solvent systems in soda (**sodium hydroxide**) pulping were described. The article, however, concluded that the pulps produced at low amine charges did not possess sufficient burst and tensile strengths. At high amine levels a lower alkali content was required, but this resulted in a deterioration of cellulose viscosity and pulp mechanical properties.

BSPR:
The high consistency pulp is then refined. Refining is used to reduce the Shive content of the pulp and to develop the desired paper properties. It is necessary in the production of corrugating medium pulps, and other pulps, that the pulp have a good tensile and wet web strength so that the wet pulp sheet will have sufficient strength to prevent tearing and consequent shutdown of the paper machine. Refining also serves to separate individual fibers more fully, make the fibers more flexible, and to give the fibers a "**fibrillated**" surface in order to enlarge the contact area between the fibers in the final paper and to increase pulp strength.

CCOR:
162/26

DOCUMENT-IDENTIFIER: US 5944953 A
TITLE: Process for simultaneous mechanical and chemical defibration of corn stalks and straw materials

---------- KWIC ---------

BSPR:
This invention relates to a pulping process to produce pulps used to make paper or paperboard from corn stalks (or other stalks), cereal straws (wheat, barley, rye, oat, etc.), other grasses, and **flax or hemp**. This is a high yield chemi-mechanical pulping process.

BSPR:
Softwoods, hardwoods, and non-wood **plants** such as bamboo, bagasse, rice, and wheat straws have been used in the prior art to produce paper pulps used in the world pulp and paper industry. The use of corn stalk to obtain useful fibers for the pulp and paper industry is also known. In the past, the conventional pulping process commonly used with corn stalks gives yields below 45 percent. Similar yields were obtained with straws and grasses.

BSPR:
Notwithstanding that non-wood fibers are typically shorter and more brittle papermaking fibers than softwood **fibers (3-5 mm)** and, as disclosed in the prior art, that the yield per weight of dry fiber obtained with the current pulping processes for those **plants** tends to be low, the availability by geographical distribution of those **plants** is so broad that it makes it possible to consider their use in paper pulps. Typically, corn stalks and corn husks produce **fiber pulps from 1 to 2 mm in length, hardwoods produce fibers from 0.8 to 1.5 mm** in length. **Flax** and true **hemp** produce bast **fibers 20 to 25 mm in length, but they require special fiber** treatment after cooking (heating).

BSPR:
Once a **plant** has been selected, such as corn stalk, the **plant** material must first be cooked or processed through a stage called pulping to remove extraneous materials such as sugars, starches, wax, and most important, lignin. Lignin essentially has to be dissolved because it is a glue-like substance that holds the fibers together. In order to provide for a usable fiber product from the pulping stage, the part of the lignin is dissolved and eventually removed. Then, the fiber is post-treated (screened, bleached, and lightly refined) to make it suitable for papermaking.

BSPR:
It is another object of this invention to provide an improved pulping process for stalks or straws, including wheat, barley, rye, rice, switchgrass, fescue, **flax, and hemp** that increase the fiber yield to between 70 and 75 percent.

DEPR:
An improved pulping process for obtaining fiber pulp useful in the manufacture of paper products from **plants** such as corn stalks. This process involves the separation of the fibers one from each other and extraction of other extraneous materials contained in the stalks and the straws. The specific invention relates to preconditioning the stalks by impregnation and pulping, wherein the particular fibrous material is processed and cooked to dissolve part of the lignin and separate the fibers one from each other.

DEPR:
Along with corn stalks, it is believed that usable fiber pulps can also be obtained from other non-wood materials, such as wheat straw (oat, barley, rye, rice), **flax, and hemp,** which may be treated and preconditioned before the pulping stage.

CCXR:
162/26

DOCUMENT-IDENTIFIER: US 4547263 A
TITLE: Method for obtaining useful products from green pseudostem, including papermaking pulp plantain

---------- KWIC ---------

BSPR:
Paper is formed from fibers derived primarily from wood, and can also be made from cotton, straw, **flax, and other vegetable** fibers. The paper is formed from matted or felted fibrous sheets formed on a fine wire screen from a liquid suspension pulp. The isolation and preparation of fibers in an acceptable form for papermaking generally involves the processes of pulping, bleaching, and refining.

DEPR:
This fibrous **plant** can be used economically for the production of inexpensive paper and paper products in any country where plantain is grown. However, in order to extract fibers from plantain for the manufacture of pulp and paper, foreign matter, such as starch, parenchyma pith cells, as well as water soluble substances in the liquid wastes must be removed from the pseudostem before it can be used for pulp and papermaking.

DEPR:
It has been estimated that by pulping one ton of the plantain pseudostem, 5,000 gallons of effluent would have to be discarded. The present invention can conveniently convert 10 to 12 tons of plantain psuedostems to pulp on an hourly basis. With a **plant** operating 24 hours a day, this would amount to 1,440,000 gallons of effluent.

DEPR:
The composition of the effluent from the plantain pseudostems includes traces of water soluble free amino acids, nitrogen, phosphorus, potassium, sodium, calcium, magnesium, and other substances necessary for **plant** growth.

DEPR:
The concentrated mixture in tank 26 contains components which can be used as **plant** food or fertilizer, and also includes starch and several organic and inorganic salts, for which recovery can also be made. Residual organic matter can then be burned as fuel, where needed.

DETL:
TABLE I

4
(Depithed 5 (Depithed 1 2 3 Fiber) Fiber)

(a)
Initial pH of effluent 5.6 7.21 (b) Cold water solubility 20.85 17.24 (c) Hot water solubility 27.7 29.31 23.09 (d) Moisture content of stem 5.96 12.0 15.98 (e) Alcohol-benzene solubility 5.40 5.63 5.56 (f) Ether solubility 1.60 1.50 (g) One percent NaOH solubility 47.8 48.50 46.85 (h) Average **fiber length** 2.52 mm 3.235 mm 3.87 mm (i) Average width 0.294 mm 27.2.mu. 26.90.mu. (j) Pentosan content 15.90 15.50 (k) Lignin content 16.9 18.10 14.75 13.67 (l) Nitrogen content average 0.25 0.284 (m) Furfur content 6.61 6.38 (n) Holocellulose 48.00 46.70 48.20 62.50 63.63 content (Average) (o) Ash Content (Average) 3.5 8.90 9.20 9.15 (p) Sand 0-3.25 6.8

DETL:
TABLE II

4
(Depithed 5 (Depithed 1 2 3 Stem) Stem) Pulp Measurement Bleached Unbleached Unbleached Bleached Bleached and Properties pulp pulp pulp pulp pulp

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(a)
Average pulp yield 48.00 50.0 48.00 62.50 63.5 (b) Average **fiber length** 2.52 mm 3.235 mm 3.87 mm in mm (c) Average fiber width 0.294 mm 27.2.mu. 26.9.mu. in .mu.m (d) Average lumen width 16.2.mu. in .mu.m (e) Average cell wall 10.6 .mu. thickness (f) Freeness of pulp 203 (csf/ml) (g) Tensile i. Stretch (Goodbrand) 5.00 ii. lbs/sq in 9.5 iii. Breaking length (Goodbrand) 9,010 10.8 km (Schepper) M 39.64 m (h) Apparent density 0.71 gm/cc (i) Tear (factor unit 300 csf) 119 i. Resistance in gms 72 ii. Factor Marx 85 105 Elemendorff (j) Air Porosity (drainage 360 42.5 in seconds) (k) Burst (factor units 300 cfs) 90 72 i. lbs/sq in (average) 24.2 ii. Mullen 64.10 24.69 (l) Folding endurance double fold i. (Schepper in meters) 2,900 (m) Ring stiffness 2.52 (n) Whiteness 95.5 79.8 80 i. Photovolt (o) Ash content 1.0 (p) Copper number 0.9 (q) Cuprammonium 21.4 (r) Lignin content 1.5 (s) Furfur content 3.4

CLPR:
1. A method for obtaining useful products, including pulp for papermaking, from green plantain pseudostem, comprising the steps of: compressing the green plantain pseudostem to obtain a liquid as a first useful product which contains amino acids, starch, and organic salts useful as **plant** food and fertilizer and partially defluidized plantain pseudostem;

CCXR:
162/26

DOCUMENT-IDENTIFIER: US 4347101 A
TITLE: Process for producing newsprint

---------- KWIC ---------

ABPL:
A high quality newsprint pulp can be produced from wood or **vegetable** fibers by thermomechanically pulping one portion of these fibers and thermochemically pulping the remaining portion. After combining these pulps the result is a pulp which has a GE brightness of 55 to 60, an opacity of 93 to 96 percent, and a relatively high tear strength. A pulp useful for making low strength papers can be produced by solely thermomechanically pulping fiber and directly using this pulp to make such products.

BSPR:
Most of the newsprint in the world is produced from wood fibers. This includes the use of softwoods and hardwoods. The reason is that wood derived fibers are longer and as a result can produce a stronger newsprint. Also, since the initial wood fiber is longer than **vegetable** derived fibers, such as bagasse, straw, reed, or the like, these can undergo a fairly vigorous pulping and bleaching to produce a newsprint having a GE brightness of 55 to 60 and an opacity of 93 to 96 percent while retaining a high strength. Bagasse, which is a typical **vegetable** fiber and is the most used **vegetable** fiber source for paper making, cannot be pulped and bleached in exactly the same manner as wood fibers and yield an acceptable newsprint. If it is so treated, the relatively shorter fibers will produce a weak newsprint paper which will produce problems in traversing standard newspaper printing presses.

BSPR:
The present invention, although directed primarily to techniques for processing **vegetable** fibers such as bagasse, can also be used for the processing of wood-derived fibers. When used for processing wood-derived fibers, less pulping liquor is required as compared with conventional pulping processes. There is also produced a pulp which is of an equivalent or higher quality than that produced by conventional wood pulping processes. However, these techniques are particularly useful for processing **vegetable fibers since as discussed, these fibers are of a shorter length** and generally require milder pulping conditions than those used for processing wood fibers. Therefore, although the processes and equipment disclosed in this application will be discussed with regard to bagasse, it is to be understood that with some

modification, they are equally applicable to hardwood or softwood-derived fibers.

DEPR:
The process and the associated equipment will now be described with reference to the drawings. FIG. 1 sets out schematically the stepwise processes for producing a high quality newsprint pulp using bagasse or wood as the fiber source and also for producing a lower strength pulp, such as a tissue grade pulp from wood or bagasse. The process for producing a newsprint pulp consists of thermochemically processing one portion of wood chips or depithed and washed bagasse, thermomechanically processing a second portion of wood chips or bagasse, and combing the two resulting pulps to make a high strength paper. If it is only desired to make a tissue grade of pulp, that is a pulp which will yield a lower strength paper, a solely thermomechanically processed fiber is used. This ability to produce either a newsprint pulp or a tissue grade pulp results in many efficiencies. For instance, when the paper-milling part of the **plant** is not producing newsprint, it can be used to make other products. This results in more efficient use of the back end of the mill which contains expensive machinery. That is, since part of the newsprint pulp line can be used to make tissue grade and other pulps, this equipment can be more heavily utilized resulting in a lower unit product cost.

CLPR:
1. A method for producing a high quality newsprint pulp from wood or **vegetable** fibrous material comprising:

CLPW:
(ii) contacting said fibrous material within the first section, of said thermomechanical digester with steam at a pressure greater than about 2 kg/sq. **cm and mechanically working said fiber** in said section of the digester to partially reduce said fibrous material to its fiber components;

CCOR:
162/25

DOCUMENT-IDENTIFIER: US 6258207 B1
TITLE: Alkaline peroxide mechanical pulping of non-woody species

---------- KWIC ---------

DEPR:
The non-woody species are cut and screened prior to being treated in accordance with the process of the present invention. Wheat straw is preferably chopped in a **hammermill** or another suitable machine to a length of between about half-inch and about one inch (13 to 25 mm). The cutting step serves not only to increase the surface area of the material and to facilitate subsequent treatment with chelant and an alkaline peroxide, but also to upgrade the quality of the fibrous raw material. The cutting process tends to produce a certain quantity of undesirable fines i.e. very short pieces of hemp, straw and straw dust. It is preferable to eliminate or reduce the amount of fines so formed by screening before the chopped non-woody species are subjected to subsequent treatment. It is believed that the fines, which are not suitable to be refined into useful fibers for the manufacturing of paper, consume needlessly the chemicals and reduce pulp drainage. Therefore, cutting and screening the non-woody species tends to yield brighter pulp at a lower peroxide consumption. Such an enhancement of bleaching efficiency can partially be explained by the finding that the process of chopping followed by screening increases the proportion of the internodal fraction in the cut straw and reduces the amount of iron and manganese.

CCXR:
162/98

DOCUMENT-IDENTIFIER: US 6267841 B1
TITLE: Low energy thermomechanical pulping process using an enzyme treatment between refining zones

---------- KWIC ---------

BSPR:
Thermomechanical pulping is also well known in the prior art. For example, Asplund, U.S. Pat. No. 2,008,898 disclose presteaming wood chips to a suitable temperature above 100.degree. C. and a corresponding pressure and refining at these conditions. Thermomechanical pulping has further been described in the literature as a process wherein the initial refining step takes place at a temperature above 140.degree. C., the lignin portion of the undelignified lignocellulose is softened so that the wood structure is broken in the lignin-rich middle lamella layer and the cellulose fibers are easily separated from each other in a substantially undamaged condition at a relatively low consumption of energy. However, subsequent **fibrillation** of the pulp to make the pulp useful for printing paper grades requires large amounts of energy, since, when the fibers are released intact, they are coated with the softened lignin, which on cooling reverts to a glassy state and is only, with difficulty, subsequently **fibrillated**. Further, the refining also causes substantial fiber length reduction thereby providing poor strength properties of the resulting product.

DEPR:
It is further contemplated that the wood chips can be pretreated by means known to those skilled in the art prior to the primary refining step. This includes preheating; steaming; diluting; chemical pretreatments with chemicals such as hydrogen peroxide, sodium sulfite or **sodium hydroxide**; enzyme pretreatment; fungal pretreatment; and/or mechanical pretreatment for chip destructuring.

CLPR:
5. A method as defined in claim 4 wherein said chemical pretreatment comprises pretreating with hydrogen peroxide, sodium sulfite, **sodium hydroxide** or a mixture of any of the foregoing.

CCOR:
162/24

CCXR:

DOCUMENT-IDENTIFIER: US 4207140 A
TITLE: Method of producing groundwood pulp

---------- KWIC ---------

BSPR:
It is especially advantageous in applying the process of the invention to store the heated spent bleaching liquor separately before mixing it with process water from the first thickening step, and to lead the process water to a separate balance tank. Thereby heat and chemical losses are avoided. The heated liquor contains organic chemicals arising from the decomposition and dissolution of lignocellulosic material, including organic acids such as formic acid, acetic acid, oxalic acid, higher fatty and resin acids, organic complexing agents, and inorganic chemicals such as hydrogen peroxide, sodium dithionite, **sodium hydroxide,** sodium silicate, sodium phosphate and magnesium sulfate.

DEPR:
From the screening stage 21 the screened pulp which had a pulp concentration of 0.8% was taken to the dewatering apparatus 23, consisting of a combined tubular screw dewaterer screw press, where it was dewatered to a pulp concentration of 26%. From the apparatus 23 the pulp was taken to the mixer 24, which was supplied via line 42 with fresh bleaching agnet solution containing 2.8% hydrogen peroxide, 4% sodium silicate and 1.2% **sodium hydroxide,** calculated on the weight of dry pulp. Recycled cooled bleaching agent solution was also taken to the mixer via line 27, in such an amount that the outgoing pulp suspension had a pulp concentration of 12%. Immediately after mixing in the mixer 24, the pulp suspension containing bleaching agent was dewatered in the screw press 25 to a pulp concentration of 24%, and then was taken to the bleaching tower 28.

DEPR:
There is no way to explain why the pulp in accordance with the invention gives such a strong paper in admixture with chemical pulp. Fiber morphology studies show however that the fibers appear to be released or exposed in a different way in defibration according to the invention than in the usual groundwood pulp manufacture and in thermomechanical pulp manufacture. In the pulp manufacturing process of the invention, the individual fibers appear to be liberated from the primary wall and the first outer secondary wall of the lignocellulosic material, so that the middle lamella (consisting virtually of

lignin) is surrounded by cellulose. The fibers furthermore appear to be well **fibrillated** and flexible, which favors fiber-to-fiber bonds in the manufacture of paper.

CCXR:
162/26

DERWENT-ACC-NO: 1996-485807
DERWENT-WEEK: 200115

TITLE: High-vol. thermal insulation element - comprises nonwoven fabric made of vegetable fibres, with a random 3-dimensional structure, isotropic fibre orientation and low density

INVENTOR: ZIMMER, H

PATENT-ASSIGNEE: ECCO GLEITTECHNIK GMBH [ECCON]

PRIORITY-DATA: 1995DE-2006761 (April 21, 1995)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DE 59606409 G	March 8, 2001	N/A	000	D04H 001/60
WO 9633306 A1	October 24, 1996	G	015	D04H 001/60
DE 29506761 U1	October 31, 1996	N/A	008	D04H 001/42
AU 9656909 A	November 7, 1996	N/A	000	D04H 001/60
CZ 9703273 A3	January 14, 1998	N/A	000	D04H 001/04
EP 821746 A1	February 4, 1998	G	000	D04H 001/60
HU 9801814 A2	November 30, 1998	N/A	000	D04H 001/60
EP 821746 B1	January 31, 2001	G	000	D04H 001/60

DESIGNATED-STATES: AU BG BR BY CA CN CZ EE HU JP LT LV MX NO NZ PL RO RU SI SK T
R UA US AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE AT BE CH DE DK ES FI
FR GB IE IT LI NL PT SE AT BE CH DE DK ES FI FR GB IE IT LI NL PT SE

CITED-DOCUMENTS: DE 1070585; DE 3301407 ; DE 4211732 ; DE 4218549 ; EP 591658

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
DE 59606409G	N/A	1996DE-0506409	April 19, 1996
DE 59606409G	N/A	1996EP-0914962	April 19, 1996
DE 59606409G	N/A	1996WO-EP01658	April 19, 1996
DE 59606409G	Based on	EP 821746	N/A

DE 59606409G	Based on	WO 9633306	N/A
WO 9633306A1	N/A	1996WO-EP01658	April 19, 1996
DE 29506761U1	N/A	1995DE-2006761	April 21, 1995
AU 9656909A	N/A	1996AU-0056909	April 19, 1996
AU 9656909A	Based on	WO 9633306	N/A
CZ 9703273A3	N/A	1996WO-EP01658	April 19, 1996
CZ 9703273A3	N/A	1997CZ-0003273	April 19, 1996
CZ 9703273A3	Based on	WO 9633306	N/A
EP 821746A1	N/A	1996EP-0914962	April 19, 1996
EP 821746A1	N/A	1996WO-EP01658	April 19, 1996
EP 821746A1	Based on	WO 9633306	N/A
HU 9801814A2	N/A	1996WO-EP01658	April 19, 1996
HU 9801814A2	N/A	1998HU-0001814	April 19, 1996
HU 9801814A2	Based on	WO 9633306	N/A
EP 821746B1	N/A	1996EP-0914962	April 19, 1996
EP 821746B1	N/A	1996WO-EP01658	April 19, 1996
EP 821746B1	Based on	WO 9633306	N/A

INT-CL_(IPC): D04H001/04; D04H001/40 ; D04H001/42 ; D04H001/54 ; D04H001/58 ; D04H001/60 ; D04H001/64 ; D04H013/00 ; D06N007/00 ; E04B001/74 ; E04C002/16
ABSTRACTED-PUB-NO: EP 821746B

BASIC-ABSTRACT:
An insulation element made of vegetable fibres is claimed, in the form of non-woven fabric with a random 3-dimensional structure, isotropic fibre orientation and a density of not more than 25 kg/m3.

USE - Used esp. for thermal insulation and sound insulation.

ADVANTAGE - Provides an insulation element with a low density and good insulating properties, based on vegetable fibres.

ABSTRACTED-PUB-NO: WO 9633306A

EQUIVALENT-ABSTRACTS: An insulation element made of vegetable fibres is claimed, in the form of non-woven fabric with a random 3-dimensional structure, isotropic fibre orientation and a density of not more than 25 kg/m3.

USE - Used esp. for thermal insulation and sound insulation.

ADVANTAGE - Provides an insulation element with a low density and good insulating properties, based on vegetable fibres.

CHOSEN-DRAWING: Dwg.0/0

DERWENT-CLASS: F04

CPI-CODES: F01-D06; F02-C01; F04-E06;

DERWENT-ACC-NO: 1993-403426
DERWENT-WEEK: 199350

TITLE: Root crop cleaner, esp. for harvester - has **rotating disc riddle** surrounded by guard formed by pairs of driven contra-rotating rollers which grip and remove vegetation remnants

INVENTOR: BULGAKOV, V M; OREL, I G ; ZYKOV P YU,

PATENT-ASSIGNEE: UKR AGRIC ACAD [UAGR]

PRIORITY-DATA: 1989SU-4741075 (September 28, 1989)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
SU 1780625 A1	December 15, 1992	N/A	002	A01D 033/08

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
SU 1780625A1	N/A	1989SU-4741075	September 28, 1989

INT-CL_(IPC): A01D033/08
ABSTRACTED-PUB-NO: SU 1780625A

BASIC-ABSTRACT:
The cleaner consists of an horizontal disc riddle (1) with its hub (2) set on a drive shaft (3), and a guard above the disc's outer diameter, connected to a drive mechanism (5).The guard is in the form of vertical rollers (4), set with a clearance from one another and linked kinematically, with one of each pair of rollers equipped with a drive mechanism in the form of a cylindrical reduction gear unit (5) mounted above it.

During operation the lifted roots and soil are fed by a conveyor (6) on to the rotating disc, turning with the disc and cleaned as they pass along the guard. The soil particles pass through the gaps between the spokes of the disc, and the vegetation remnants are gripped by the rollers (4) and pulled out between the contra-rotating pairs. The cleaned roots are discharged through a gap in the guard on to a conveyor (7).

ADVANTAGE - More effective root cleaning. Bul.46/15.12.92.

CHOSEN-DRAWING: Dwg.1/1

DERWENT-CLASS: P12

DERWENT-ACC-NO: 1993-286106
DERWENT-WEEK: 199336

TITLE: Root crop cleaner, e.g. for beet harvester - has rotating cantilevered augers with spirals made from elastic rods set above conical riddle and turned by bevel gear drive

INVENTOR: BULGAKOV, V M; GURCHENKO, A P ; ZYKOV P YU,

PATENT-ASSIGNEE: UKR AGRIC ACAD [UAGR]

PRIORITY-DATA: 1989SU-4771072 (December 18, 1989)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
SU 1759289 A1	September 7, 1992	N/A	003	A01D 033/08

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
SU 1759289A1	N/A	1989SU-4771072	December 18, 1989

INT-CL_(IPC): A01D033/08
ABSTRACTED-PUB-NO: SU 1759289A

BASIC-ABSTRACT:
The cleaner consists of a **rotary riddle** (1) with an outer guard (4) on a vertical shaft, a row of cleaning elements (5) above the riddle, and feed and discharge conveyors (7,8).The cleaning elements are in the form of cantilevered augers (5) with a drive mechanism, able to rotate about their own axes in the opposite direction to the riddle's rotation.

The **rotary riddle** is in the shape of a cone with its tip pointing upward, while the spirals of the augers are made from elastic rods attached cantilever fashion to shafts.The auger drive is in the form of a bevel gear transmission, with gears (10) on the ends of the auger shafts meshing with a gear (9) on the vertical shaft.

ADVANTAGE - Improved performance, with intensive removal of soil from roots.
Bul. 33/7.9.92

CHOSEN-DRAWING: Dwg.1/2

DERWENT-CLASS: P12

DERWENT-ACC-NO: 1993-403426
DERWENT-WEEK: 199350

TITLE: Root crop cleaner, esp. for harvester - has **rotating disc riddle** surrounded by guard formed by pairs of driven contra-rotating rollers which grip and remove vegetation remnants

INVENTOR: BULGAKOV, V M; OREL, I G ; ZYKOV P YU,

PATENT-ASSIGNEE: UKR AGRIC ACAD [UAGR]

PRIORITY-DATA: 1989SU-4741075 (September 28, 1989)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
SU 1780625 A1	December 15, 1992	N/A	002	A01D 033/08

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
SU 1780625A1	N/A	1989SU-4741075	September 28, 1989

INT-CL_(IPC): A01D033/08
ABSTRACTED-PUB-NO: SU 1780625A

BASIC-ABSTRACT:
The cleaner consists of an horizontal disc riddle (1) with its hub (2) set on a drive shaft (3), and a guard above the disc's outer diameter, connected to a drive mechanism (5).The guard is in the form of vertical rollers (4), set with a clearance from one another and linked kinematically, with one of each pair of rollers equipped with a drive mechanism in the form of a cylindrical reduction gear unit (5) mounted above it.

During operation the lifted roots and soil are fed by a conveyor (6) on to the rotating disc, turning with the disc and cleaned as they pass along the guard. The soil particles pass through the gaps between the spokes of the disc, and the vegetation remnants are gripped by the rollers (4) and pulled out between the contra-rotating pairs. The cleaned roots are discharged through a gap in the guard on to a conveyor (7).

ADVANTAGE - More effective root cleaning. Bul.46/15.12.92.

CHOSEN-DRAWING: Dwg.1/1

DERWENT-CLASS: P12

DERWENT-ACC-NO: 1992-232929
DERWENT-WEEK: 199228

TITLE: Root crop harvester - has separating riddle equipped with front hinged section to reduce crop losses and damage

INVENTOR: BULGAKOV, V M; RUZHILO, Z V ; STAROMINSKII, A S

PATENT-ASSIGNEE: UKR AGRIC ACAD [UAGR]

PRIORITY-DATA: 1988SU-4494539 (October 17, 1988)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
SU 1683539 A2	October 15, 1991	N/A	003	A01D 025/04

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
SU 1683539A2	N/A	1988SU-4494539	October 17, 1988
SU 1683539A2	Add to	SU 1482570	N/A

INT-CL_(IPC): A01D025/04
RELATED-ACC-NO: 1990-081767
ABSTRACTED-PUB-NO: SU 1683539A

BASIC-ABSTRACT:
The separator, basically as described in Parent Application consists of a main frame (1) with a rotary digging implement (2) and root collector (3), behind which are a beater with rigid vanes (5) and a separating riddle (6).

The separating **riddle is equipped with rotary** section (11) on a horizontal hinge (10) at its front end, which has a S-shape lengthwise profile. The **rotary section of the riddle** is linked kinematical ly to the frame via a spring loaded rod (13), and its lower end is situated on a level with the axis of the root collector (3). The beater's vanes are positioned at an angle to the beater shaft, alternately in opposite directions.

ADVANTAGE - Reduced crop losses and damage. Bul. 38/15.10.91

CHOSEN-DRAWING: Dwg.1/2

DERWENT-CLASS: P12

DERWENT-ACC-NO: 1991-187456
DERWENT-WEEK: 199126

TITLE: Cleaner-grader for grain - comprises sectional rotary drum reinforced by connecting rings and driven by external flexible rollers

INVENTOR: BEAUFILS, A

PATENT-ASSIGNEE: COMIA FAO SA [COMIN]

PRIORITY-DATA: 1989FR-0012977 (October 4, 1989)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
FR 2652519 A	April 5, 1991	N/A	000	N/A

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
FR 2652519A	N/A	1989FR-0012977	October 4, 1989

INT-CL_(IPC): A01C001/00; B07B001/22 ; B07B004/06
ABSTRACTED-PUB-NO: FR 2652519A

BASIC-ABSTRACT:
The cleaner and grader, for grain, seeds and similar materials, consists of a **rotary cylindrical riddle** (3) and a suction extractor for waste materials. The cylinder is equipped with an external reinforcement in the form of bands (23) and it is supported and driven by its outer surface.

The waste extractor is connected to the drum feed and located inside the cylinder, and the reinforcing bands are linked to one another by lengthwise rods inside the drum. The reinforcing bands can be in three sections, with a narrow intermediate ring between two broader outer ones to form recesses for joining sections of the drum together. The drum sections have perforations of different dimensions and the drum is rotated by external driven rollers with flexible surfaces.

ADVANTAGE - Design simplicity and easier cleaning.

CHOSEN-DRAWING: Dwg.1/6

DERWENT-CLASS: P11 P43

DERWENT-ACC-NO: 1983-F0052K
DERWENT-WEEK: 198315

TITLE: Grain harvester **riddle chaff remover - has rotary cylindrical riddle** enclosing suction fan for more effective separation

INVENTOR: GAVRILOV, V P; RUSANOV, A I ; YARMASHEV, Y U N

PATENT-ASSIGNEE: GORYACHKIN AGRIC ENG [GORY]

PRIORITY-DATA: 1976SU-2423166 (November 22, 1976)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
SU 933030 B	June 9, 1982	N/A	004	N/A

INT-CL_(IPC): A01D041/12
ABSTRACTED-PUB-NO: SU 933030B

BASIC-ABSTRACT:
Grain harvester cleaning riddle chaff remover consists of a chaff conveyor unit and a fan (2). The chaff remover is designed for more effective grain and chaff separation by incorporating a blower above the conveyor unit, with a **rotary cylindrical riddle** (1) enclosing the fan (2). The unit also has a chaff collector (4), which is equipped with an auger (8) and is connected to the cylindrical riddle by seals in the form of a brush (5) and roller (6).

After threshing, the grain and chaff are thrown onto the cylindrical riddle. The grains are deflected off the riddle onto the pan (10) below, while the chaff is held onto the surface of the riddle by suction from the fan inside and carried round to the chaff collector. Bul. 21/7.6.82.

CHOSEN-DRAWING: Dwg.1/4

DERWENT-CLASS: P12

DERWENT-ACC-NO: 1980-G7234C
DERWENT-WEEK: 198031

TITLE: Grain crop thresher - has swinging levers on rear of concave deck to reduce grain losses and damage

INVENTOR: KOROBITSYN, V M

PATENT-ASSIGNEE: LENGD AGRIC INST [LESE], NW AGRIC MECH ELEC RES[NWAGR]

PRIORITY-DATA: 1969SU-1954182 (July 23, 1969) , 1969SU-1352232 (July 23, 1969)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
SU 703062 A	December 15, 1979	N/A	000	N/A

INT-CL_(IPC): A01F012/24
ABSTRACTED-PUB-NO: SU 703062A

BASIC-ABSTRACT:
A thresher, especially for use on a grain combine harvester, consists of a **rotating drum (1) with a riddle** concave deck (2) beneath it linked by its fore end to an eccentric drive shaft (3).

The thresher is designed to reduce the amount of unthreshed or crushed grain by having the rear of the concave suspended from the machine frame by swinging levers (6).

The fore end of the concave describes a motion which is close to circular, the centre of the concave moves in an ellipse, and the rear oscillates to and fro. The different movements provide the intense threshing and faster riddling of the grain, while a constant clearance between the rear of the concave and the drum reduces losses and damage.

DERWENT-CLASS: P12

DERWENT-ACC-NO: 1978-65705A
DERWENT-WEEK: 197837

TITLE: Rotary screening disc for cleaning e.g. beetroot and turnips - has spiral guide for longer prod. cleaning path over disc

INVENTOR: AMICEL, C G; JACQUOT, J ; THIERART, J

PATENT-ASSIGNEE: BERTIN & CIE [BERU]

PRIORITY-DATA: 1976FR-0036741 (December 7, 1976)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
FR 2373335 A	August 11, 1978	N/A	000	N/A

INT-CL_(IPC): A23N013/00; B07B001/08
ABSTRACTED-PUB-NO: FR 2373335A

BASIC-ABSTRACT:
Agricultural prod. is fed onto a perforated, **rotary riddle** disc, where it is steadied and guided by deflectors. The deflector is in the form of a spiral spreading out progressively from the centre of the disc to its circumference. The prod. is pref. loaded on to the disc near the centre of thespiral and on one side only of a fixed diametral line across the disc.

The deflector pref. comprises a spiral frame from which guide fingers are resiliently suspended. The fingers are sufficiently resistant to guide the prod. in its spiral course but will give way elastically if they encounter an unusually heavy or bulky object. The machine is pref. mobile to travel with a tractor attachment such as a vegetable lifting or harvesting machine.

Used for cleaning soil and other rubbish, e.g. grass, pebbles, from agricultural prods. partic. beetroot, potatoes, turnips, onions, and cider apples. The spiral guide leads the prod. in a longer path before it leaves the riddle disc. This gives a longer cleaning process for a cleaner prod. and returns more soil etc. to the ground from which the crop is lifted.

DERWENT-CLASS: D14 P43

CPI-CODES: D03-J;

DERWENT-ACC-NO: 1977-E5701Y
DERWENT-WEEK: 197722

TITLE: Grain combined harvester hopper filler - with two triangular flap valves to regulate section filling

PATENT-ASSIGNEE: GRAIN HARVESTING [GRAIR]

PRIORITY-DATA: 1974SU-2077144 (November 19, 1974)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
SU 520069 A	October 22, 1976	N/A	000	N/A

INT-CL_(IPC): A01D041/12; A01F012/46
ABSTRACTED-PUB-NO: SU 520069A

BASIC-ABSTRACT:
A grain combine harvester hopper section filler, consisting of a distributing auger (2) underneath the grain cleaner riddle (1), and independent conveyor augers (5, 6) for the separate hopper sections (3, 4), is designed to allow regulation of the degree of filling of the hopper sections by incorporating a **rotating deflector in the base of the riddle** before the distributing auger - in the form of two triangular flaps (14, 15), with their apexes pointing towards the distributing auger.

In the normal operating position, the flaps (14, 15) are flush with the riddle and the grain flows evenly into the tray (13) of the distributing auger (9). When one of the hopper sections (3, 4) is filling faster than the other, however, one of the flaps can be raised, and the flow of grain is deflected to the appropriate end of the auger (2).

DERWENT-CLASS: P12